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ABSTRACT

This paper analyzes a proposal for integrating computer literacy into undergraduate level philosophy study at the National Taiwan University and suggests definitions and curriculum formats. The paper proposes a new definition of language and a multi-dimensional definition of computer literacy. These are then applied to the undergraduate education of the philosophy department. This application involves recommendations for a revision of the current curriculum, analysis of the definition of computer literacy, scrutiny of the changing role of teachers, students, and the philosophy department, discussion of teachers' and students' backgrounds, and analysis of the philosophical foundations and social implications of using computers in the curriculum and instruction of the Department. The paper's conclusion, based on Ludwig Wittgenstein's theory of language as "language games," argues that, as language games are for communication, computer literacy in the philosophy department is a communication between philosophy, all subject matters about human beings, and the computer. In addition, the end or goal of the game is to make college philosophy students intellectual and wise in a new age, and that college philosophy students are computer-literate in the communication contest among philosophy, subject matters about human beings, and the computer. (JB)

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ED 386 086

COMPUTER LITERACY FOR COLLEGE-LEVEL PHILOSOPHY STUDENTS AT NATIONAL TAIWAN UNIVERSITY

BY

YUAN-LIH LIN

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

at the

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Foreword

A dream from my childhood is: travelling all over the world.

* * * * *

"Studying education is my main goal, but, philosophy is the foundation of all studies. So, I majored in philosophy.... Now, I want to know and understand how philosophy applies to education, how it solves educational problems, and what conclusions or results it gives rise to.... Education is a very practical and complex thing. However, [without any theoretical] foundation, the practical work will be confused and nonsensical.... I hope to ... do research work that will lead to a clearer definition of the direction in which Taiwan's education system is moving." (Yuan-lih Lin, 1988)

Acknowledgment

I am deeply grateful to my dear father. Having been threatened by cancer for twenty years, he has been wisely advising me and thoughtfully guiding me since I was a child. He exposed me to a lot of valuable, and unusual experiences.

* * * * *

Thanks to my instructors at National Taiwan University, Taiwan, Republic of China. In my mind, they are good teachers, though some of them have no impressive degrees.

* * * * *

My two-and-a-half-year study at the University of Wisconsin-Madison was an adventure involving many harsh, awful, struggling nightmares and many incredible, marvelous, and exciting experiences.

I am especially appreciative of Professor Vere DeVault, my major professor, for his special consideration of me during this period of time. I apologize for having brought him a lot of trouble after his retirement.

For solving a vital problem in my previous twenty-

five years of life, I extend my heartfelt gratitude to Professor Jurgen Herbst, Professor Michael Streibel, and Professor Robert Enright. I appreciate their kindness, understanding, and consideration.

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Abstract

Computer literacy is the new direction in which the college-level Philosophy Department at National Taiwan University, Taipei, Taiwan, Republic of China should move. This task has not been attempted before.

I propose a new definition of language and a multi-dimensional definition of computer literacy. Then, I shall apply them to the undergraduate education of the Philosophy Department. In this thesis, I recommend revisions of the current curriculum; analyze my definition of college philosophy students' computer literacy; scrutinize the changing roles of teachers, students, and the Philosophy Department in computer-based education; discuss teachers' backgrounds and students' backgrounds; and analyze the philosophical foundations and social implications of using computers in the curriculum and instruction of the Department. Finally, I discuss the potential for analyzing computer languages.

Introduction

Nowadays, the computer invades human life and human society step by step. Education is the central human activity which produces the labor human society needs. We require a new policy for curriculum and instruction to greet the inevitable growth in the importance of the role computers will play in our advancing technological society.

Philosophy is the foundation and the origin of all subjects. After my four-year undergraduate education in the Philosophy Department at National Taiwan University (NTU), Taiwan, Republic of China (R. O. C.) and my two-and-a-half-year master's study in the Department of Curriculum and Instruction at the University of Wisconsin-Madison (UW-Madison), Wisconsin, U. S. A., I think the Philosophy Department at NTU needs to revise its current undergraduate curriculum and instruction. Then, I believe that students from the department will not fall behind the technological advances, and furthermore, will continue contributing to human society.

In this thesis, the assumed group comprises

teachers and college-level students in the Philosophy Department at NTU. I have developed a multi-dimensional definition of computer literacy based upon Ludwig Wittgenstein's philosophy of language and the language relative hypothesis; situated it within the context of philosophy literacy and the politics of literacy; analyzed my definition of computer literacy for undergraduates in the Philosophy Department at NTU; examined the changing roles of students, teachers, and the Philosophy Department in a philosophical type computer-based education; examined the philosophical foundations and social implications of using computers in the curriculum; and suggested revisions in the current curriculum.

Basically, college-level philosophical computer literati are those who understand computers from philosophical standpoints. College students in the Philosophy Department are not supposed merely to indulge in the glorious achievements of the great philosophers of the past. They are also supposed to understand the current trend of thought as well as to contribute something to human society in the future. Therefore, experiencing the impact of new technology,

college students in the Philosophy Department should probe beyond the merely heuristic skills of computer uses, computer structures and operations, computer applications and limitations, or programming. The most appropriate way to implement this goal would be to integrate philosophical topics about the computer into the existing curriculum in the department and the existing system in the undergraduate program at NTU. According to this definition, students should also be taught to use the computer as a tool to write their papers and essays; that is in its capacity as a word processor. College philosophy students' main task would be to understand the impact of the computer on human beings and to meditate on it. This would not exclude the concept of programming. For those students who were interested in logic, mathematical logic, philosophy of science, etc., perhaps programming would be required. However, generally speaking, knowing some basic characteristics of the computer, having some experiences in programming, or knowing some programming would help students understand and think about the computer.

Finally, through the four-year college-level

curriculum and instruction in the Philosophy Department, college-level philosophy students will understand, approach, and view the computer from philosophical perspectives. They will continually broaden their knowledge of the intelligence resources available to a technological, information-based society. At a mere mundane level, they will know the word processor and programming. In the coming age, many of them will become creators and problem solvers who contribute to society, or foresee future occurrences and generate solutions, and influence trends in the ideas of computer philosophy.

Reasons and Purposes of Computer Literacy in the Philosophy Department

What computer features would philosophy students find useful? What is their challenge in the information age?

For college philosophy students, the most useful computer skill is word processing to edit essays and papers. Computer skills such as computer programming are secondary or ancillary to philosophy students' computer literacy. However, for some college students who are interested in high-level logic, mathematical logic, philosophy of science, etc., programming may be required. (This requires help from the Department of Computer Science.)

The Importance of Language Education

The world is an entity. It is the common referent of different languages. Different languages are different senses of the same referent.[1]

Many scholars and teachers propose that the precise use of language is important. However, in my experiences, nobody elaborated the claim. In this chapter, I advocate a new view of literacy that would include natural languages, body languages, artificial languages, sign languages, computer languages, images, electronic signals, and music. I also propose to adopt Ludwig Wittgenstein's influential idea of language philosophy--language games (on which I will elaborate later)--as the foundation of language education; then, elaborate on the importance of language education for both teachers and students.

Preliminary to the topic of precision usage in language is a brief discussion of the concept of "literacy." In a technological information-based society, we need to have a new view of literacy. The

[1] derived from Gottlog Frege's "Sense and Reference"

concept of literacy is originally rooted in language. According to one view, a language has two components: syntax and semantics. The concept of "language" I adopt here has broader references than traditional usage. It refers not only to natural languages, body languages, and artificial languages, but also to sign languages, computer languages, images, electronic signals, and music. They all possess the two components of one definition of a language: syntax and semantics.

As to the philosophical foundation of language education, I agree with the central idea in Ludwig Wittgenstein's philosophy of language, "language games," which includes four concepts: activity, communication, end, and context (Chen, 1982). This implies that the function of language is for the historical and social communicative activities between human beings and the environment. In other words, language is the conduit between human beings and the world we live in (Bowers, 1988).

Based on the explanation above, we can elaborate on how important language is for teachers and students. On the one hand, the modern teacher's responsibility is

to transmit knowledge to students through educational communications and technology. As Jurgen Herbst said in "The Scholar as Student and Teacher: Teacher Education and Human Diversity" (in press), the teacher's responsibility is to transfer the culture, the accumulated experience of humanity, the inheritance of all that we deem worthwhile in our existence. What teachers are learning today will be, sooner or later, transformed into lessons of their own. Teachers have to confront, in one way or another, the challenge of using language precisely to perform their responsibilities in their classroom in the future. Once teachers are good at communication through educational communications and technological languages, they can accurately, effectively, and fluently transmit knowledge to their students.

On the other hand, again through educational communications and technology, students learn traditional and current knowledge, create new knowledge, modify the obsolete and erroneous knowledge they have gained, and then transmit the integration of updated and worthy traditional knowledge to the next generation. Once they understand how human beings use

facial expressions, gestures, actions, images, sounds, and meanings to represent the world, they can communicate with each other as well as their environment. Good language skills empower students to understand the subject-matters designed in curriculum and instruction. It becomes easier for them to figure out and to make sense of the teacher's facial expressions, gestures, actions, behaviors, and languages as well as to understand what those abstract symbols, varied sounds, simplified diagrams, tables, and pictures mean in the textbooks, on the blackboard, in the audio tapes, and on the screens (i.e. TV's, the computer's, etc.). Then they are able to survive well in human society for their whole lives.

In sum, whether as listeners, thinkers, writers, or speakers, students and teachers need to acknowledge and be committed to the integrity of words. The precise use of language, after all, is the teacher's and the student's basic tool. If it is misused and jeopardized, communication becomes treacherous and human survival may experience catastrophic consequences. All in all, the use of good language skills is the first lesson we ought to learn, teach,

and practice in our schools. (Herbst, in press)

In view of the above elaboration that language is important for the acquisition of knowledge, and for the communication between human beings and their environment, language education is undoubtedly important for college philosophy students' computer literacy. In fact, it is especially important for them. In order to be able to use computer language skillfully, students needs to understand how to fluently use other language system as well. Philosophy is the quintessence of human thought. To understand it, college philosophy students should have good language backgrounds. In their previous nine years of compulsory education and senior high school education, Chinese, English, arithmetics, mathematics, art education, physical education (e. g. dances), and music are common required courses. Now, Chinese and English are common requirements for college freshmen. Two years of second foreign language training (i.e. Japanese, French, or German) is required for sophomores and juniors in the Philosophy Department also. I think etymology, mathematics courses such as calculus, and classical languages such as Latin and Greek are

important for philosophy students because the social contextual definition of computer literacy implies historical understanding of languages.

The Concept of Computer Literacy

As I had mentioned before, the concept of literacy is originally rooted in language. Lexicographically, literacy means the quality or state of being able to read and write. Structurally, there are two essential components in a language: syntax and semantics. The computer language is an artificial language. Therefore, it makes sense to use the term "computer literacy." Based on this comprehension, it is very easy to infer that computer literacy is the ability to do computing. In other words, the quality or state of being able to read and write computer programs is computer literacy. But, according to the language relative hypothesis, the languages we have learned influence our world views. Artificial languages would create new worldviews for those who are involved with them. This implies a hidden meaning of context. As previously stated, Ludwig Wittgenstein's "language games" includes four concepts: activity, communication, end, and context. Using artificial languages itself involves the concepts of activity, communication, end, and context. I believe it is the

contextual meaning of computer literacy, but not the skill-level meaning of it, that is important and unique for college students in the Philosophy Department. The contextual meaning of computer literacy is what most college philosophy students will find most important.

Computer Literacy Through the Education in the Philosophy Department

Common required courses.

I think it is a good idea to update students by integrating the computer into the common required courses which the Ministry of Education requires.

Professional curriculum of the Philosophy Department.

As a freshman, college students of the Philosophy Department are required to take Introduction to Philosophy, Logic, History of Chinese Philosophy, History of Indian Philosophy, and History of Western Philosophy. In Introduction to Philosophy, I suggest that the teacher introduce some basic ideas relating the computer to philosophy. In Logic, it is helpful for the teacher to mention that logic is the essential idea of the computer. Using Prolog to teach reasoning in addition to the traditional logic and symbolic logic might be even more helpful. History of Philosophy could mention some contemporary philosophical topics and debates about the computer.

In the sophomore year, college philosophy students

learn Economics, Sociology, Principles of Law, Politics, Psychology, Education, Art, Literature, Religion, Anthropology and History. These subjects are significantly involved in human life and human society. Parts of the curriculum discussing these subjects include their uses and relevance in a technological information-based age.

For the juniors of the Philosophy Department, the required professional courses are Ethics, Epistemology, and Metaphysics. In Ethics, the teacher can demonstrate the student what moral principles are implied in an information society and, given the pervasive fanaticism about the computer, what norms we should establish, etc. In Epistemology, the teacher can inform what traditional topics the computer will cause to be re-explored and implied, what new topics are implied by the computer, etc. In Metaphysics, the teacher can discuss with students the ontology in which the computer is embedded.

Junior college students begin to choose elective courses in the Department of Philosophy. In the professional courses, teachers may incorporate topics relating to the computer as thoroughly as they can.

Thus college philosophy students can comprehend the computer through a philosophical approach.

Minors.

A minor is optional for sophomores and juniors at NTU. With this option, college students in the Philosophy Department can combine philosophy, the computer, and other fields such as psychology, sociology, mathematics, computer science, or history together to form their own college education.

After the four-year journey in the Philosophy Department, philosophy students will have a basic understanding about the nature of the technological, information-based society they are living in. They will comprehend the completeness and the consistency of different schools of philosophy and their opinions about the computer. They will have mastered the word processor. They will probably also have some introductory knowledge about computer science. The most distinct characteristic they will have is that they will become more concerned about human society. Also, one part of this definition of computer literacy may involve job-related knowledge, because some college students are interested in becoming philosophy scholars

or philosophy teachers who will concern themselves with computer-related topics such as logic or technologically-oriented society.

In sum, the integration of the common required courses, the professional curriculum in the Philosophy Department, and minors is an effective way to teach the college philosophy student computer literacy.

Four Components in the Definition of Computer Literacy for College Students in the Philosophy Department

Computer literacy for college-level students in the Philosophy Department includes four components. They are the content component, the human component, the social component, and the aesthetic component.

Content component.

The definition of computer literacy in the Philosophy Department is context-free as well as context-bound. Obviously, computer literacy in the Philosophy Department is context-bound because it is concerned only with philosophy and the computer. It is, simultaneously, context-free because philosophy is an all-embracing subject, being the foundation and the origin of all studies. Every study has its philosophical assumptions and always leaves its fundamental problems or unsolvable problems to philosophy.

On the one hand, the concrete content can be seen as a loose conglomeration of skills because computer literacy be taught as survey courses. It involve mere rudimentary skills. As the above description suggests,

college-level philosophical computer literati mainly treat the computer as a tool for writing. On the other hand, and more importantly, the curriculum displays a distinct hierarchy. In the department focuses on thought as its only concern, philosophical thinking is given priority, but little or no emphasis is placed on developing skills and prerequisite skills. It develops college philosophy students' thinking to a meta-formal operation stage[2]. In other words, after having reviewed diverse philosophical schools through the four-year undergraduate program, philosophy students understand a logical system by examining its completeness and consistency. This is critical thinking, which requires higher cognitive ability than the formal operation in Piaget's cognitive theory: meta-formal operation.

According to the language relative hypothesis and the concept of literacy mentioned formerly, computer literacy has a historical relationship to print literacy and language literacy. Besides, because the computer involves technology and science, computer

[2] derived from Piaget's theory of cognition and Geoffrey Hunter's theory of metalogics

literacy has a subordinate and historical relationship to technological literacy and scientific literacy. Moreover, computer literacy is inevitably and unavoidably backed by some kinds of values, or norms, etc.; therefore, it has a subordinate and incidental relationship to aesthetic literacy. In other words, the computer is not value-free.

From the as-yet unformulated values and norms, the college philosophy students will understand the essence, the nature, and the characteristics of the information age and society; mediate on the problems the information age and society confronts; and consequently contribute to oncoming trends of thought as well as practical social problems in the future. Moreover, those college students in the Philosophy Department who have gone through the process of a computer literate curriculum will be able to combine ethically-derived knowledge with computer literacy to choose and act in an information society because the ethics requirement balanced with skills acquisition from other classes would provide them with a basis for ethical judgment and acts.

Human component.

The human beings assumed in philosophical computer literacy are cognizant of self, situation, and society. Consequently, the learner is treated as an end. Besides, the process of introducing philosophy to college philosophy students will naturally, spontaneously, instinctively, and automatically shapes the learner's thinking. The process of college-level computer literacy in the Philosophy Department will also naturally shape the learner's thinking. Still, philosophy is an optimistic way to encourage students' insights, the flash of intellect which creates a new frontier in the history of ideas. Therefore, the computer literate in the Philosophy Department will understand the world or even change it. To express it in another way, computer literate college students in the Philosophy Department will have more power to act in the world (i.e. more power to control and manipulate processes) because they grasp the essence of the computer itself, the technological age itself, and the information society itself. This means they will have more power to choose or choose not to do certain things such as setting limits on their ability to control and manipulate processes.

Besides, during college years, students of the Philosophy Department can become computer literate by going not only through the formal and explicit curriculum in the Philosophy Department, but also through the informal learning which the curriculum implies. For example, teacher's beliefs concerning the information society and the technological age will lead the teacher to behave in certain ways which unconsciously influence students' beliefs and behaviors. In addition, the results of human behaviors and actions are unpredictable. Consequently, some kinds of the informal learning processes are unforeseen.

Meanwhile, since all the topics in the courses are related to all human activities, philosophy students can develop their attitudes to be more considerate about their community, state, nation, and the world they are living in. Simultaneously, philosophy deals with the abstract world. This gives students opportunities to push their cognitive growth toward abstract and profound thinking--optimally, to the meta-formal operation stage in their cognitive development.

Philosophy also enriches human life. By being

computer literate in the Philosophy Department, students would enrich their potential for precise, careful, and elegant choices and they would be able to make significant choices because they would understand, recognize and figure out the morality of an information society, and a technological age. This does not exclude the fact that their choices would also stem from other sources. Actually, they would integrate them. After students had studied computer literacy through education in the Philosophy Department, they would come to understand that even though the definition of computer literacy seems to have nothing to do with the ethics of freedom and dignity; it is actually very closely relevent to ethics. Instructors might also want to discuss this topic in the required professional course, Ethics.

Social component.

Since required courses and elective courses would include diverse and manifold viewpoints, there would be no hidden imperatives underlying learning situations that would reproduce the normative views of society. The course tend to maximizing rather than distributing the production of technical knowledge. If there were

an elective course in educational philosophy, college philosophy students who took it would have a chance to become conscious of the implicit curriculum in the education of different nations or peoples.

However, college students majoring in the Philosophy Department are most likely to benefit from this computer literacy. Dialectics for social valuing and social change are also implied in required courses and elective courses. Students would be able to combine these and conceptualize in new forms as a result of their newly-learned computer literacy. My definition presumes an instant-technology society. With the acceptance of this definition, college philosophy students, after their graduating from college, would consciously or unconsciously influence the computer illiterate to be aware of the computer to a greater or lesser extent because of their integration of computer literacy into their own cognitive and academic applications.

Aesthetic component.

During the four-year journey in the Philosophy Department, college students expose themselves to many differing philosophical theories. They wish to explore

these philosophical theories, perhaps consider them in the light of moral principles and actions. Therefore, computer literacy would help college philosophy students in the Philosophy Department unconsciously teach themselves. Meanwhile, they would learn from the required courses that different schools of philosophy espouse different theories and arguments about the information age. They would begin to "perceive alternative realities" to their taken-for-granted viewpoints which were shaped of necessity by their pre-collegial environments. Furthermore, and all in all, computer literacy through philosophy education would finally "provoke ...[college students in the Philosophy Department]... to wide-awareness and to posing questions and pondering the world"; "to think conceptually, to structure experience, to look through wider and more diverse perspectives at the lived world." (Greene, 1982, p. 329)

The Changing Roles of Students, Teachers, and the Philosophy Department in the Philosophical Type of Computer-Based education

Students' role.

Through computer literacy in the four-year college, philosophy students learn traditional and current knowledge, create new knowledge, modify the obsolete and erroneous knowledge, and then transmit the integration of updated and worthy traditional knowledge to the next generation. In other words, they can communicate with each other and their contextual environment. Then they are able to survive in human society.

Teachers' role.

Teachers' responsibilities are to transfer the culture, the accumulated experience of humanity, the inheritance of all that we deem worthwhile in our existence. What they are learning today will be, sooner or later, transformed into lessons of their own (Jurgen Herbst, in press). Teachers have to confront, in one way or another, the challenge of language and the computer to perform their responsibilities in their

classroom in the future. Once teachers are good at communication through the computer-based education they can accurately, effectively, and fluently transmit knowledge to students. To be more concrete, the philosophy teacher's responsibilities range from taking care of the computer to helping the student understand the philosophical topics regarding the computer and make sense of what they have learned.

The Philosophy Department's role.

The Philosophy Department is the place where the college philosophy students learn diversified philosophical theories and different arguments about the information age. That is, they broaden their minds in the Philosophy Department. In the Philosophy Department, they then are provoked "to wide-awareness and to posing questions and pondering the world"; "to think conceptually, to structure experience, to look through wider and more diverse perspectives at the lived world" (Greene, 1982, p. 329).

Teachers' Background and Students' Background

Teachers's background.

Ronald G. Ragsadale (1988) says "[s]uccessful group work requires a group that can express their expectations in a form that other group members can understand easily. This may require that the members with an education background will have to learn some 'computerese' and the computer people may have to learn some 'educationese' in order to make sure they are working toward the same goal" (p. 114). The teachers I have in mind are professionals, most of whom, hold doctorates in philosophy and computer science, psychology and computer science, education and computer science, etc. "They are not a very homogeneous group, but they do have some similarities" (Bennis, 1961, p. 69). Their similarities assume the central role that computers take in the computer literacy for college-level philosophy students; in their concern with teaching how computer influences philosophy; in their interest in integrating computer science with philosophy, computer science with psychology, computer science with law, computer science with politics,

computer science with economics, computer science with education, etc.

Though each instructor has, in his/her mind, a set of unique ideas based on his/her own academic background and personal beliefs, as well as the needs of his/her students, there are some common general aims. Generally speaking, they include: improving the education in the Philosophy Department; effecting a change in the educational direction of the Philosophy Department so that the education of the department come to be considered updated; increased understanding among and within disciplines to reduce the detached tension among different disciplines; developing interdisciplinary training; developing better methods of 'conflict resolution' than suppression, denial, and the use of unprincipled power in computer society; viewing the curriculum and instruction in college-level philosophy students' computer literacy as an organic system of education marked by mutual interaction, interdependence, multigroup membership, shared responsibility and conflict resolution through training or problem solving" (Bennis, 1961, p. 69).

Students' background.

College students in the Philosophy Department, at present, come from three backgrounds: the ones choosing the Philosophy Department as their college major and passing the annual criteria of the Philosophy Department in the College and University Entrance Examination; the ones switching their majors from other departments on campus; and the ones choosing the Philosophy Department as their major and passing the annual criteria of the Philosophy Department in the Transferring Examination of NTU.

From 1993, the nine-year compulsory education will be extended to be a twelve-year vocational-directed compulsory education (Fan, 1989). There might be more students with vocational backgrounds in the future. Philosophy teachers would pay attention to the coming phenomenon and adjust their curriculum and instruction.

The Philosophical Foundations of Using Computers in the Curriculum

The philosophical implication in this curriculum and instruction is behaviorism. Behaviorism is a simplified contextual learning. At first sight, it is rationalism and determinism. In fact, it is also empiricism, and nondeterminism. The reasons are as follow: (1) Everyone would experience the curriculum; (2) Results of human behaviors and actions are unpredictable; (3) the hidden factors involved in the curriculum are too many to be controlled as well as we expect.

There are also different approaches to the goal. Sometimes, we succeed in the approach we chose at first. Sometimes, we fail. Then we change to other approaches. The goal is definite. This is determinism. Meanwhile, the approaches to the definite goal are uncertain. This is nondeterminism. Therefore, behaviorism is determinism as well as nondeterminism.

The Social Implications of Using Computers in the Curriculum

A university should be in the business of socializing college students to have favorable and well-informed affective orientations towards computers and technology to survive happily in a technological information-based society. Universities should also be responsible for improving college philosophy students' ability to criticize the phenomena in this society so that they can improve the quality of all human existence. Philosophy Department is a miniature of a university. Therefore, Philosophy Department should be in the business of socializing college philosophy students to have favorable and well-informed affective orientations towards computers and technology to survive happily in a technological information-based society. Philosophy Department should also be responsible for improving college philosophy students' ability to criticize the phenomena in a technological information-based society so that they can improve the quality of all human existence.

Conclusions

In sum, Ludwig Wittgenstein's "language games" already pointed out how computer literacy would be implemented in the Philosophy Department:

(1) Schooling itself is an "activity," not to mention computer literacy for college students in the Philosophy Department.

(2) The function of the "language games" is "communication". The Philosophy Department education itself is a communication between philosophy and all subject matters about human beings. In the case of computer literacy in the Philosophy Department, it naturally focuses on the communication between philosophy, all subject matters about human beings, and the computer.

(3) The "end" or "goal" of the game is to make college philosophy students intellectual and wise in a new age.

(4) College philosophy students are computer-literate in the "context" of communication among philosophy, subject matters about human beings, and the computer.

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